DJ-A10

Service Manual

*** Specifications**
*** Circuit Description**
*** Parts list**
*** Schematic Diagram**
*** Block Diagram**
*** PC Board View**
*** Mechanical Parts**

ALINCO, INC.

SPECIFICATIONS

General	
Frequency Range	RX: 136~174MHz TX: 136~174MHz
Number of channels	Max. 128
Frequency Spacing	5, 6.25, 10, 12.5, 15, 20, 25, 30, 50KHz
Operating Voltage	7.4 V DC ±20%
Battery Life	More than 13 hours at 5 watts (5-5-90 duty cycle with 1500mAh Li battery)
Operating Temperature range	–20°C to +55°C
Dimensions and Weight With EBP-87 (1500mAh battery)	 Approx. 59W x98H x 35D mm 220g
Frequency Stability	±2.5ppm
Channel Frequency Spread	38MHz
Receiver (Measurements made per TIA/EIA-603)	
RF Input Impedance	50Ω
Sensitivity	
EIA 12dB SINAD	Wide : 0.25μV Narrow : 0.35μV
Selectivity .	Wide : 70dB Narrow : 60dB
Intermodulation	Wide : 65dB Narrow : 60dB
Spurious response	60dB
Audio Power Output	1000mW with less than10% distortion
First IF	38.850MHz
Second IF	450KHz
Transmitter (Measurements made per TIA/EIA-603)	
RF Power Output	HI: 5W Mid:2W LO:0.5W
RF Output Impedance	50Ω
Spurious and Harmonics	65dB
Modulation	Wide : 16K0F3E Narrow : 11K0F3E
FM Noise	Wide : 45dB Narrow : 40dB
Audio Distortion	Less than 5%

CIRCUIT DESCRIPTION

1. Frequency Configuration

The frequency configuration is shown in Figure 1 and Table 1.

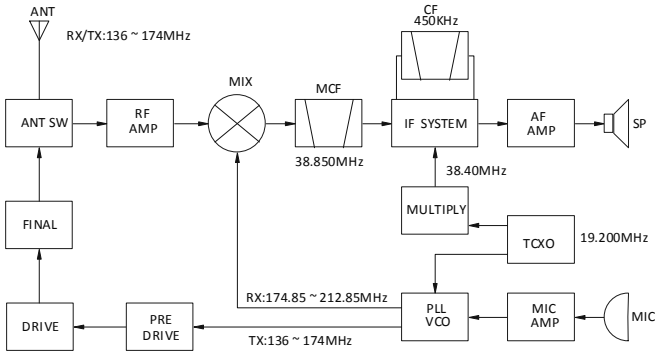


Fig. 1 Frequency configuration

Reception method	Double super heterodyne	
	1st IF Frequency	38.85MHz (Upper)
	2nd IF Frequency	450kHz (Lower)
Transmission method	VCO direct oscillation amplification	
Modulation	Variable reactance phase modulation	

Table 1 Basic configuration

2. Receiver

2-1. Front-end RF Amplifier

The received signal from the antenna passes through a low pass filter and then through a transmit/receive switching circuit (antenna switch) and enters the band-pass filter (L520, L521).

The signal passing through the band-pass filter (L520, L521) is amplified by with an RF amplifier (Q506), passes through a band-pass filter (L522) and enters the first mixer (Q507).

These band-pass filters are tuned to a desired frequency by varicaps (D507, D508, D509, D510). A tuning voltage corresponding to the desired signal is applied to each varicap through the P76 terminal (pin 32) of the MPU (U201) to tune to the receive frequency. (See Fig. 2)

2-2. First Mixer

The received signal passing through the band-pass filter (L522) is mixed with the first local signal generated by the VCO by the first mixer (Q507) to produce a first IF signal (38.85 MHz) (Upper heterodyne). The first IF signal passes through a MCF (Monolithic crystal filter: XF500 and XF501) to remove unwanted components.

The first IF signal passing through the MCF (XF500 and XF501) is amplified by an IF amplifier (Q511) and the resulting signal enters the FM IC (U503).

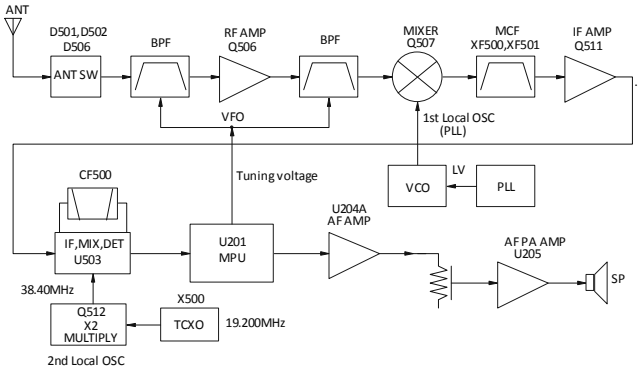


Fig.2

2-3. IF Amplifier Circuit

The first IF signal (38.85 MHz) amplified by the IF amplifier (Q511) and the second IF signal (38.40 MHz) generated by tripling the 19.200 MHz reference oscillator frequency of the TCXO (X500) by Q512, are mixed in the FM IC to produce a second IF signal (450 kHz) (Lower heterodyne). The second IF signal passes through a ceramic filter (CF500) to remove unwanted components.

The second IF signal passing through the ceramic filter (CF500) passes through the IF amplifier in the FM IC again and is detected to produced an audio signal. (See Fig.2)

2-4. Wide/Narrow Switching Circuit

Narrow and Wide settings can be made for each channel by switching the demodulation level. The WIDE (high level) and NARROW (low level) data is output from U201, pin 11.

When a WIDE (high level) data is received, Q503 and Q509 turn on.

When a NARROW (low level) data is received, Q503 and Q509 turn off.

Q503 and Q509 turns on/off with the Wide/Narrow data and the U503 detector output level is switched to maintain a constant output level during wide or narrow signals. (See Fig.3)

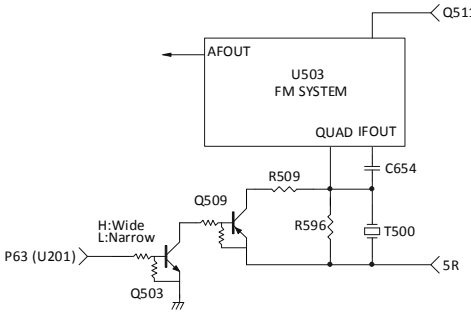


Fig.3

CIRCUIT DESCRIPTION

2-5. Squelch

A noise component is obtained by passing FM detection output (FM IC pin 9) through an operational amplifier in the FM IC and band-pass filter consisting of R593, R594, R595, C580, C581. The noise component is rectified in the FM IC to produce a DC voltage, which is output from the N-REC terminal (pin 14) of the FM IC as squelch voltage.

The squelch voltage enters the SQ terminal (pin 40) of the MPU (U201) and is compared with the reference voltage preset in the MPU to control audio signal ON/OFF.

To output sounds from the speaker, U201 sends a high signal to the PA1 line and turns U205 on through Q201, Q205, Q206 and Q207. (See Fig.4)

2-6. S Meter Circuit

The S meter voltage is output from the RSSI terminal (pin 12) of the FM IC (U503) and input to the SM terminal (pin 39) of the MPU. Then the voltage is converted from analog to digital in the MPU to control the S meter display on the LCD. (See Fig.4)

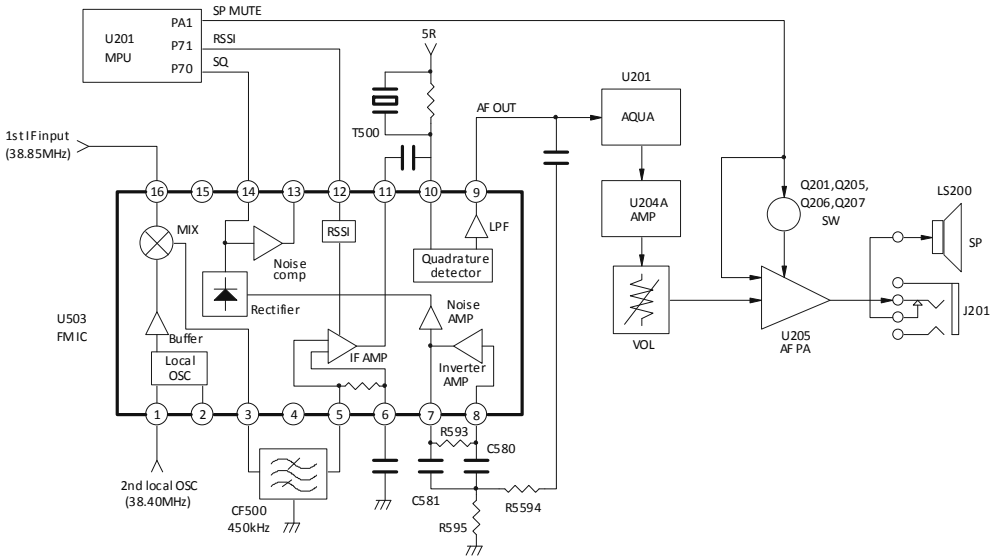


Fig.4

2-6. AF signal system

2-6-1. Audio amplifier circuit

The demodulated signal from U503 goes to Audio processor through U201 (AF filtered, high-pass filtered, de-emphasized , De-Scrambler, Expander, and Mux).

The signal then goes through an AF amplifier U204A (1/2), an AF volume control (W200), and is routed to an audio power amplifier (U205), where it is amplified and output to the internal speaker. (See Fig.5)

2-6-2. Receive Signalling

2-6-2-1 Low-speed data（CTCSS/DCS）

The output signal from FM IC (U503) enters the microprocessor (U201). U201 determines whether the CTCSS or DCS matches the preset value, and controls the SP MUTE (PA1) and the speaker output sounds according to the squelch results. (See Fig.5)

2-6-2-2 High-speed data (DTMF)

The DTMF input signal from the FM IC goes to pin 18 of U202. The signal is demodulated by DTMF demodulator in U202. The demodulated data goes to the MPU for processing. (See Fig.5)

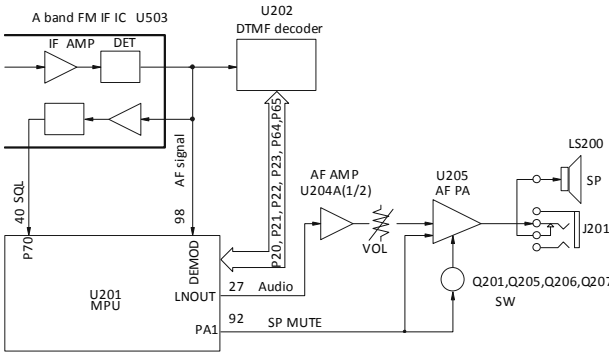


Fig.5

CIRCUIT DESCRIPTION

3. PLL frequency synthesizer

The PLL circuit generates the first local oscillator signal for reception and the RF signal for transmission.

3-1.PLL circuit

A reference frequency of 5 kHz or 6.25 kHz is produced by dividing the 19.20 MHz reference frequency of the TCXO (X500) with PLL IC (U504). Comparison frequency is produced by amplifying VCO output with an RF amplifier (Q520) and dividing it with the PLL IC.

The PLL synthesizer with 5 kHz and 6.25 kHz step is configured by comparing phases of the reference frequency and comparison frequency.

The phase difference between reference frequency and comparison frequency passes through a charge pump in the PLL IC, then ripples are removed with a loop filter with low-range passing characteristics to produce VCO control voltage (lock voltage). (See Fig. 6)

3-2.VCO circuit

The VCO produces a desired frequency directly with a Colpits oscillation circuit containing an oscillation transistor (Q518) used for both transmission and reception.

The VCO control voltage is applied to varicap (D516, D517) to produce a desired frequency.

The PA0 terminal (pin 91) of the MPU (U201) goes "L" during transmission, and the R/T control switch (Q519) is turned OFF to change oscillation frequency. (See Fig. 6)

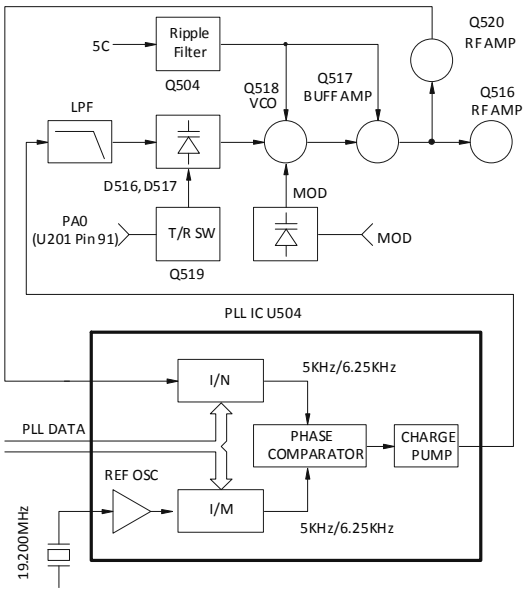


Fig.6

3-3. Unlock Detector circuit

If a pulse signal appears at the LD pin of U504, an unlock condition occurs, and the DC voltage obtained from C565, R584 and D518 causes the voltage applied to the microprocessor to go low. When the microprocessor detects this condition, the transmitter is disabled, ignoring the push-to-talk switch input signal. (See Fig. 7)

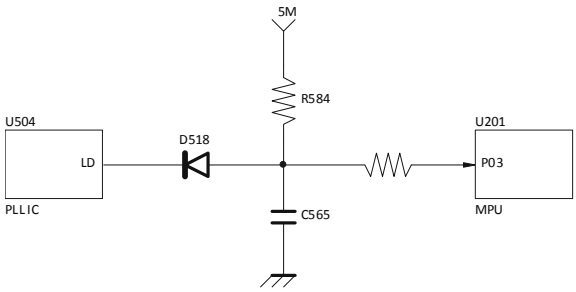


Fig.7

4. Transmission signal system

4-1.Microphone Amplifier Circuit

The audio signal from the microphone passes through a microphone amplifier (U207) and enters Audio processor (U201).U201 is composed of Compressor, high-pass filtered, pre-emphasis, Mux, Scrambler, limiter, low-pass filtered, and MOD circuit. The signal then passes through a low-pass filter (splatter filter) Q208 and cuts 3kHz and higher frequencies. The resulting signal goes to the VCO through the VCO modulation terminal for direct FM modulation. (See Fig. 8)

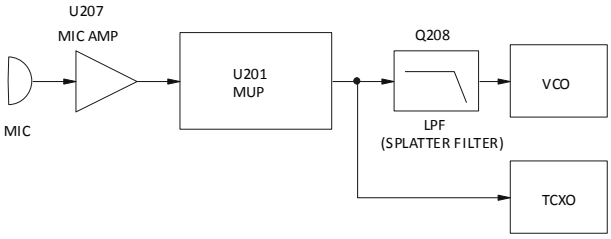


Fig.8

4-2. Encode Signalling

CTCSS/DCS/DTMF

A necessary signal for CTCSS/DCS/DTMF encoding is generated by U201 and FM-modulated to the PLL reference signal. Since the reference OSC does not modulate the loop characteristic frequency or higher, modulation is performed at the VCO side by adjusting the balance. (See Fig. 8)

CIRCUIT DESCRIPTION

4-3. Drive and Final Amplifier Circuit

The signal from the T/R switch (D503 is on) is amplified by the pre-drive (Q515) and drive amplifier (Q513) to 50mW. The output of the drive amplifier is amplified by the RF power amplifier (Q505) to 5.0W (1W when the power is low).

The RF power amplifier consists of two MOS FET stages. The output of the RF power amplifier is then passed through the harmonic filter (LPF) and antenna switch (D506) and applied to the antenna terminal. (See Fig. 9)

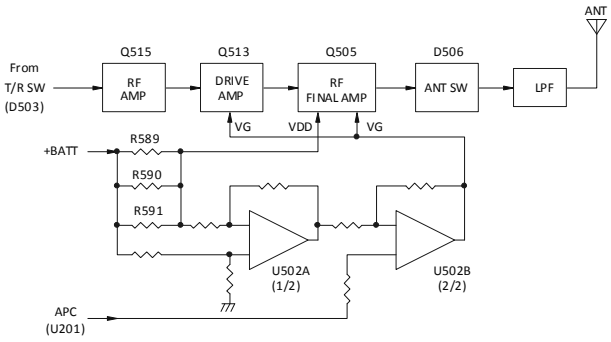


Fig.9

4-4. APC Circuit

The APC circuit always monitors the current flowing through the RF power amplifier (Q505) and keeps a constant current. The voltage drop at R589, R590 and R591 is caused by the current flowing through the RF power amplifier and this voltage is applied to the differential amplifier U502(1/2). U502 (2/2) compares the output voltage of U502 (1/2) with the reference voltage from U201. The output of U502 (2/2) controls the VG of the RF power amplifier, Drive amplifier and Pre-Drive amplifier to make both voltages the same.

The change of power high/low is carried out by the change of the reference voltage. (See Fig. 9)

5. Display Circuit

The CPU (U201) controls the display LCD and LEDs.

When power is on, the LCD driver will use the P36, P37 lines to control the LCD illumination (D5) and key backlight LEDs (D7-D12).

The LCD driver (U2) and CPU (U201) communicate through the P40, P41, P42, P43, P44, P45 lines.

When the transceiver is busy, P66 line becomes high impedance, and the green LED (D201) lights, in transmit mode, the P67 line becomes high impedance, and the red LED (D200) lights.(See Fig. 10.)

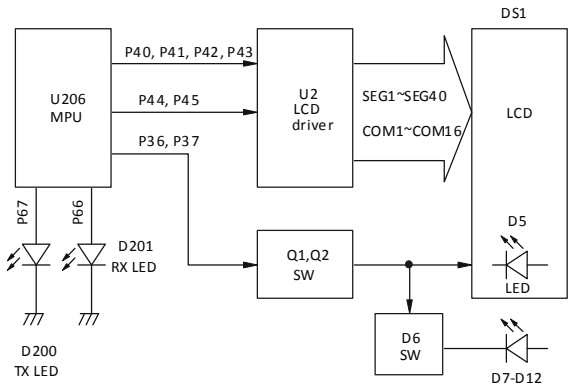


Fig.10

6 Control Circuit

The microprocessor (U201) operates at a clock of 32.768KHz.The control circuit consists of a microprocessor (U201) and its peripheral circuits. It controls the TX-RX unit. U201 mainly performs the following:

(1) Switching between transmission and reception by the PTT signal input.
(2) Reading system, group, frequency, and program data from the memory circuit.
(3) Sending frequency program data to the PLL.
(4) Controlling squelch on/off by the DC voltage from the squelch circuit.
(5) Controlling the audio mute circuit by the decode data input.
(6) Transmitting tone and encode data.

6-1. Memory Circuit

Memory circuit consists of the MPU (U201 and an EEPROM (U203). An EEPROM has a capacity of 64k bits that contains the transceiver control program for the MPU and data such as transceiver channels and operating features. (See Fig. 11)

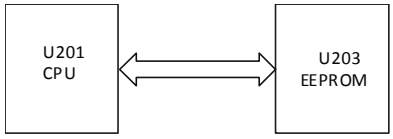


Fig.11

CIRCUIT DESCRIPTION

6-2. Low battery warning

The battery voltage is monitored by the microprocessor (U201). When the battery voltage falls below the voltage set by the Low Battery Warning adjustment, the red LED flashes to notify the operator that it is time to replace the battery. If the battery voltage falls even more (approx. 6.0V), a beep sounds and transmission is stopped.

Low battery warning	Battery condition
The red LED flashes during transmission	The battery voltage is low but the transceiver is still usable.
The red LED flashes and a continuous beep sounds while PTT pressed.	The battery voltage is low and the transceiver is not usable to make calls.

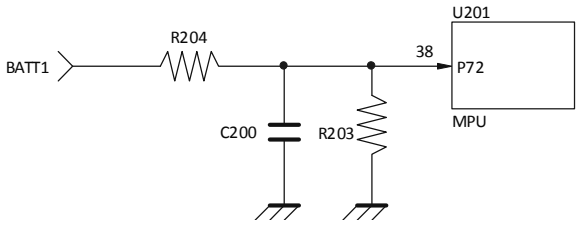


Fig.12

7. Key Input

Keys and channel selector circuit.

The signal from the keys and channel selector are directly input to the microprocessor, as shown in Figure 13.

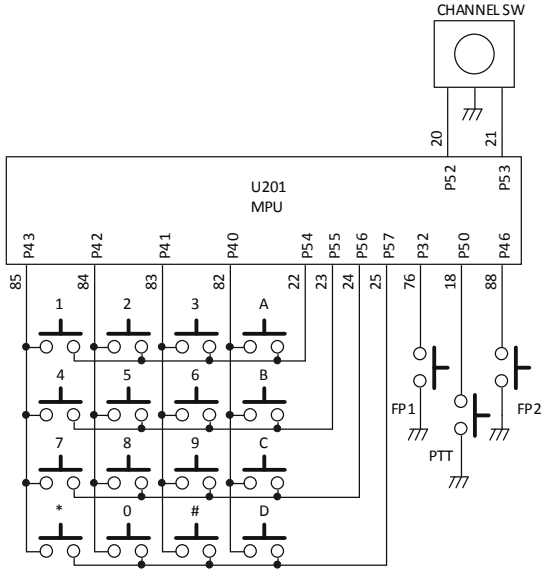


Fig.13

8. Power Supply

There are four 5V power supplies for the microprocessor: 5M,5C,5R, and 5T. 5M for microprocessor is always output while the power is on. 5M is always output, but turns off when the power is turned off to prevent malfunction of the microprocessor.

5C is a common 5V and is output when SAVE is not set to OFF.

5R is 5V for reception and output during reception.

5T is 5V for transmission and output during transmission.

PARTS LIST

DISPLAY UNIT

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C3-C4		SMT CAPACITOR	0603	2	104±10% 50V
C5-C6		SMT CAPACITOR	0603	2	103±10% 50V
R4-R5		SMT RESISTOR	0603	2	1K±5%
R6-R10		SMT RESISTOR	0603	5	4.7K±5%
R11-R12		SMT RESISTOR	0603	2	560R±5%
R14-R15		SMT RESISTOR	0603	2	150R±5%
R16		SMT RESISTOR	0603	1	100K±5%
R17		SMT RESISTOR	0603	1	22R±5%
R18		SMT RESISTOR	0603	1	47K±5%
RP2-RP3		SMT RESISTOR ARRAY	4D03	2	1KX4
D1		SMT LIGHTED DIODE	0603	1	YELLOW
D2		SMT DIODE	0805	1	NO USE
D5		DIP LIGHTED DIODE	DIP-3	1	LEDR&G(A)
D6		SMT DIODE	SOT-532	1	DAP222
D8		SMT LIGHTED DIODE	0603	1	WHITE
D10-D12		SMT LIGHTED DIODE	0603	3	WHITE
DS1		LCD		1	LCD
J1	ZUE1006	FLAT CABLE CONNECTOR	SSOI16F	1	0.5S-1X-16PWB
L1		SMT FERRITE BEAD (BLACK)	0603	1	NO USE
Q1-Q2		SMT DIGITAL TRANSISTOR	EMT3	2	DTC114EE
Q3		SMT TRANSISTOR	SOT-23	1	2SC1623
U2		SMT IC		1	HD44780A00
S1-S16		KEY		16	KEY

PARTS LIST

MAIN UNIT

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C200		SMT CAPACITOR	0402	1	104±10% 50V
C201		SMT CAPACITOR	0402	1	102±10% 50V
C202		SMT CAPACITOR	0402	1	103±10% 50V
C203-C204		SMT CAPACITOR	0402	2	102±10% 50V
C205		SMT CAPACITOR	0402	1	104±10% 50V
C206-C212		SMT CAPACITOR	0402	7	103±10% 50V
C213		SMT CAPACITOR	0402	1	100P±5% 50V
C214-C220		SMT CAPACITOR	0402	7	103±10% 50V
C221		SMT CAPACITOR	0603	1	183±10% 50V
C222		SMT CAPACITOR	0805	1	106±10% 50V
C223		SMT CAPACITOR	0402	1	224±10% 50V
C224		SMT CAPACITOR	0603	1	105±10% 50V
C225		SMT CAPACITOR	0402	1	NO USE
C226		SMT CAPACITOR	0603	1	105±10% 50V
C227		SMT CAPACITOR	0603	1	104±10% 50V
C228-C233		SMT CAPACITOR	0402	6	104±10% 50V
C234		SMT CAPACITOR	0603	1	224±10% 50V
C235-C237		SMT CAPACITOR	0402	3	104±10% 50V
C238		SMT CAPACITOR	0402	1	332±5% 50V
C239		SMT CAPACITOR	0402	1	NO USE
C240		SMT CAPACITOR	0402	1	104±10% 50V
C241-C243		SMT CAPACITOR	0402	3	224±10% 50V
C244-C245		SMT CAPACITOR	0402	2	104±10% 50V
C246		SMT CAPACITOR	0402	1	273±10% 50V
C247-C248		SMT CAPACITOR	0402	2	20P±5% 50V
C249		SMT CAPACITOR	0402	1	NO USE
C250		SMT CAPACITOR	0402	1	120P±5% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C251		SMT CAPACITOR	0603	1	105±10% 50V
C252		SMT CAPACITOR	0402	1	47P±5% 50V
C253		SMT CAPACITOR	0402	1	56P±5% 50V
C254		SMT CAPACITOR	0402	1	104±10% 50V
C255		SMT CAPACITOR	0805	1	225±10% 50V
C256		SMT CAPACITOR	0805	1	475±10% 50V
C257-C258		SMT CAPACITOR	0805	2	225±10% 50V
C259-C260		SMT CAPACITOR	0402	2	100P±5% 50V
C261		SMT RESISTOR	0402	1	100R±5%
C262		SMT CAPACITOR	0603	1	103±10% 50V
C263		SMT CAPACITOR	0603	1	104±10% 50V
C264		SMT CAPACITOR	0402	1	30P±5% 50V
C265		SMT CAPACITOR	0402	1	102±5% 50V
C266		SMT CAPACITOR	0402	1	102±10% 50V
C267		SMT CAPACITOR	0402	1	15P±5% 50V
C268		SMT CAPACITOR	0402	1	470P±5% 50V
C269		SMT CAPACITOR	0402	1	272P±5% 50V
C270		SMT CAPACITOR	0402	1	473P±5% 50V
C271		SMT CAPACITOR	0402	1	332P±5% 50V
C272		SMT CAPACITOR	0402	1	NO USE
C273		SMT CAPACITOR	0402	1	472±10% 50V
C274		SMT CAPACITOR	0402	1	332±5% 50V
C275		SMT CAPACITOR	0402	1	105±10% 50V
C276		SMT CAPACITOR	0402	1	680P±5% 50V
C277		SMT CAPACITOR	0402	1	332±10% 50V
C278		SMT CAPACITOR	0805	1	475±10% 50V
C279		SMT CAPACITOR	0805	1	225±10% 50V
C280		SMT CAPACITOR	0402	1	103±10% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C281		SMT CAPACITOR	0402	1	102±10% 50V
C282		SMT CAPACITOR	0402	1	104±10% 50V
C283		SMT CAPACITOR	0402	1	122±10% 50V
C284		SMT CAPACITOR	0402	1	470P±5% 50V
C285		SMT CAPACITOR	0402	1	103±10% 50V
C286		SMT CAPACITOR	0402	1	104±10% 50V
C287		SMT CAPACITOR	0402	1	224±10% 50V
C500		SMT CAPACITOR	0603	1	103±10% 50V
C501		SMT CAPACITOR	0603	1	102±10% 50V
C502-C508		SMT CAPACITOR	0402	7	102±10% 50V
C509		SMT CAPACITOR	0402	1	103±10% 50V
C510		SMT CAPACITOR	0402	1	104±10% 50V
C511		SMT CAPACITOR	0603	1	102±10% 50V
C512-C525		SMT CAPACITOR	0402	14	102±10% 50V
C526-C535		SMT CAPACITOR	0402	10	103±10% 50V
C536		SMT CAPACITOR	0603	1	103±10% 50V
C537-C553		SMT CAPACITOR	0402	17	103±10% 50V
C554		SMT CAPACITOR	0805	1	105±10% 50V
C555-C556		SMT CAPACITOR	0603	2	105±10% 50V
C557		SMT CAPACITOR	0603	1	104±10% 50V
C558-C560		SMT CAPACITOR	0402	3	104±10% 50V
C561		SMT CAPACITOR	0402	1	102±10% 50V
C562-C565		SMT CAPACITOR	0402	4	104±10% 50V
C566		SMT CAPACITOR	0402	1	224±10% 50V
C567		SMT CAPACITOR	0805	1	102±10% 50V
C568		SMT CAPACITOR	0603	1	NO USE
C569		SMT CAPACITOR	0603	1	2P±0.1P 50V
C570		SMT CAPACITOR	0603	1	56P±5% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C571		SMT CAPACITOR	0402	1	1.5P±0.1P 50V
C572		SMT CAPACITOR	0603	1	6P±0.1P 50V
C573		SMT CAPACITOR	0603	1	18P±5% 50V
C574		SMT CAPACITOR	0402	1	8P±0.25P 50V
C575-C576		SMT CAPACITOR	0402	2	2P±0.1P 50V
C577-C579		SMT CAPACITOR	0402	3	NO USE
C580-C581		SMT CAPACITOR	0402	2	220P±5% 50V
C582		SMT CAPACITOR	0805	1	475±10% 50V
C583		SMT CAPACITOR	0805	1	225±10% 50V
C584		SMT CAPACITOR	0402	1	102±10% 50V
C585		SMT CAPACITOR	0402	1	100P±5% 50V
C586		SMT CAPACITOR	0402	1	33P±5% 50V
C587		SMT CAPACITOR	0402	1	100P±5% 50V
C588		SMT CAPACITOR	0402	1	102±10% 50V
C589-C591		SMT CAPACITOR	0402	3	100P±5% 50V
C592		SMT CAPACITOR	0603	1	30P±5% 50V
C593		SMT CAPACITOR	0603	1	102±10% 50V
C594-C596		SMT CAPACITOR	0402	3	470P±10% 50V
C597		SMT CAPACITOR	0402	1	102±10% 50V
C598		SMT CAPACITOR	0402	1	103±10% 50V
C599		SMT CAPACITOR	0402	1	3P±0.1P 50V
C600		SMT CAPACITOR	0402	1	102±10% 50V
C601		SMT CAPACITOR	0402	1	470P±10% 50V
C602-C603		SMT CAPACITOR	0603	2	470P±10% 50V
C604-C607		SMT CAPACITOR	0402	4	470P±10% 50V
C608		SMT CAPACITOR	0402	1	6P±0.1P 50V
C609		SMT CAPACITOR	0402	1	102±10% 50V
C610-C612		SMT CAPACITOR	0402	3	470P±10% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C613		SMT CAPACITOR	0603	1	NO USE
C614		SMT CAPACITOR	0603	1	47P±5% 50V
C615		SMT CAPACITOR	0603	1	20P±5% 50V
C616		SMT CAPACITOR	0603	1	13P±5% 50V
C617		SMT CAPACITOR	0402	1	2P±0.1P 50V
C618		SMT CAPACITOR	0603	1	NO USE
C619		SMT CAPACITOR	0402	1	2P±0.1P 50V
C620		SMT CAPACITOR	0402	1	1P±0.1P 50V
C621		SMT CAPACITOR	0402	1	2P±0.1P 50V
C622		SMT CAPACITOR	0402	1	5P±0.1P 50V
C623		SMT CAPACITOR	0603	1	NO USE
C624		SMT CAPACITOR	0603	1	24P±5% 50V
C625		SMT CAPACITOR	0402	1	10P±5% 50V
C626		SMT CAPACITOR	0603	1	13P±5% 50V
C627		SMT CAPACITOR	0402	1	4P±0.1P 50V
C628		SMT CAPACITOR	0603	1	27P±5% 50V
C629		SMT CAPACITOR	0603	1	18P±5% 50V
C630		SMT CAPACITOR	0402	1	30P±5% 50V
C631		SMT CAPACITOR	0603	1	5P±0.1P 50V
C632		SMT CAPACITOR	0402	1	12P±5% 50V
C633		SMT CAPACITOR	0603	1	13P±5% 50V
C634		SMT CAPACITOR	0402	1	2P±0.1P 50V
C635		SMT CAPACITOR	0603	1	27P±5% 50V
C636		SMT CAPACITOR	0402	1	2.5P±0.1P 50V
C637		SMT CAPACITOR	0402	1	47P±5% 50V
C638		SMT CAPACITOR	0402	1	56P±5% 50V
C639		SMT CAPACITOR	0402	1	8P±0.25P 50V
C640		SMT CAPACITOR	0402	1	7P±0.1P 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C641		SMT CAPACITOR	0402	1	36P±5% 50V
C642-C645		SMT CAPACITOR	0402	4	12P±5% 50V
C646		SMT CAPACITOR	0402	1	18P±5% 50V
C647		SMT CAPACITOR	0402	1	3P±0.1P 50V
C648		SMT CAPACITOR	0402	1	NO USE
C649		SMT CAPACITOR	0402	1	2P±0.1P 50V
C650-C651		SMT CAPACITOR	0402	2	24P±5% 50V
C652		SMT CAPACITOR	0603	1	150P±5% 50V
C653		SMT CAPACITOR	0402	1	47P±5% 50V
C654		SMT CAPACITOR	0402	1	82P±5% 50V
C655-C657		SMT CAPACITOR	0402	3	1P±0.1P 50V
C658		SMT CAPACITOR	0402	1	22P±5% 50V
C659		SMT CAPACITOR	0402	1	30P±5% 50V
C660		SMT CAPACITOR	0402	1	47P±5% 50V
C661		SMT CAPACITOR	0402	1	27P±5% 50V
C662		SMT CAPACITOR	0402	1	22P±5% 50V
C663		SMT CAPACITOR	0402	1	30P±5% 50V
C664		SMT CAPACITOR	0402	1	10P±0.25P 50V
C665		SMT CAPACITOR	0402	1	102±10% 50V
C666		SMT CAPACITOR	0402	1	NO USE
C667		SMT CAPACITOR	0402	1	1P±0.1P 50V
C900		SMT CAPACITOR	0402	1	102±10% 50V
C901		SMT CAPACITOR	0402	1	103±10% 50V
C903		SMT CAPACITOR	0402	1	104±10% 50V
C904		SMT CAPACITOR	0402	1	15±5% 50V
C907		SMT CAPACITOR	0402	1	NO USE
E200		SMT TANTALUM CAPACITOR	A type	1	10uF±20% 10V
E205		SMT TANTALUM CAPACITOR	A type	1	22uF±20% 6.3V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
E500-E503		SMT TANTALUM CAPACITOR	A type	4	10uF±20% 10V
E504		SMT TANTALUM CAPACITOR	A type	1	4.7uF±20% 10V
E505-E506		SMT TANTALUM CAPACITOR	A type	2	0.22uF±20% 35V
E507		SMT TANTALUM CAPACITOR	A type	1	10uF±20% 16V
R200		SMT RESISTOR	0402	1	5.1K±5%
R201		SMT RESISTOR	0402	1	47K±5%
R202		SMT RESISTOR	0402	1	100K±5%
R203		SMT RESISTOR	0402	1	51K±1%
R204		SMT RESISTOR	0402	1	150K±1%
R205		SMT RESISTOR	0402	1	560R±5%
R206		SMT RESISTOR	0402	1	1K±5%
R207		SMT RESISTOR	0402	1	100R±5%
R208		SMT RESISTOR	0402	1	47K±5%
R209		SMT RESISTOR	0603	1	NO USE
R211		SMT RESISTOR	0402	1	100K±5%
R212		SMT RESISTOR	0402	1	10K±5%
R213		SMT RESISTOR	0402	1	560K±5%
R214		SMT RESISTOR	0402	1	NO USE
R215		SMT RESISTOR	0402	1	470K±5%
R216		SMT RESISTOR	0402	1	100R±5%
R217-R218		SMT RESISTOR	0402	2	220R±5%
R219		SMT RESISTOR	0603	1	56R±5%
R220		SMT RESISTOR	0402	1	100K±5%
R221-R222		SMT RESISTOR	0402	2	10K±5%
R223		SMT RESISTOR	0402	1	100K±5%
R224		SMT RESISTOR	0603	1	22R±5%
R225		SMT RESISTOR	0402	1	47K±5%
R226-R227		SMT RESISTOR	0402	2	10K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R228		SMT RESISTOR	0402	1	8.2K±5%
R229-R233		SMT RESISTOR	0402	5	10K±5%
R234		SMT RESISTOR	0402	1	22K±5%
R235		SMT RESISTOR	0402	1	1K±5%
R236		SMT RESISTOR	0402	1	330K±5%
R237		SMT RESISTOR	0402	1	10K±5%
R238		SMT RESISTOR	0402	1	2.2K±5%
R239-R240		SMT RESISTOR	0402	2	10K±5%
R241		SMT RESISTOR	0402	1	10K±5%
R242		SMT RESISTOR	0402	1	22K±5%
R243		SMT RESISTOR	0805	1	100R±5%
R244-R245		SMT RESISTOR	0402	2	33K±5%
R246		SMT RESISTOR	0402	1	150K±5%
R247		SMT RESISTOR	0402	1	100K±5%
R248-R249		SMT RESISTOR	0402	2	1K±5%
R250-R253		SMT RESISTOR	0402	4	4.7K±5%
R255		SMT RESISTOR	0402	1	0R
R256		SMT RESISTOR	0402	1	120K±5%
R257		SMT RESISTOR	0402	1	NO USE
R258		SMT RESISTOR	0402	1	27K±5%
R259		SMT RESISTOR	0402	1	NO USE
R260		SMT RESISTOR	0402	1	100K±5%
R261		SMT RESISTOR	0402	1	390K±5%
R262		SMT RESISTOR	0402	1	200K±5%
R263		SMT RESISTOR	0402	1	51K±5%
R264		SMT RESISTOR	0402	1	100K±5%
R265		SMT RESISTOR	0402	1	0R
R266		SMT RESISTOR	0402	1	NO USE

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R267		SMT RESISTOR	0402	1	1.8M±5%
R268		SMT RESISTOR	0402	1	6.8K±5%
R269		SMT RESISTOR	0402	1	3.3K±5%
R270		SMT RESISTOR	0402	1	300K±5%
R271		SMT RESISTOR	0402	1	10K±5%
R272		SMT RESISTOR	0402	1	470R±5%
R273-R275		SMT RESISTOR	0402	3	10K±5%
R276		SMT RESISTOR	0402	1	NO USE
R277		SMT RESISTOR	0402	1	27K±5%
R278		SMT RESISTOR	0402	1	10K±5%
R500		SMT RESISTOR	0402	1	47K±5%
R501		SMT RESISTOR	0402	1	120K±5%
R502-R507		SMT RESISTOR	0402	6	150K±1%
R508		SMT RESISTOR	0402	1	560R±5%
R509-R510		SMT RESISTOR	0402	2	1.8K±5%
R511-R512		SMT RESISTOR	0402	2	NO USE
R512		SMT RESISTOR	0603	1	NO USE
R513		SMT RESISTOR	0402	1	NO USE
R514		SMT RESISTOR	0603	1	100R±5%
R515		SMT RESISTOR	0402	1	NO USE
R516		SMT RESISTOR	0402	1	4.7K±5%
R517		SMT RESISTOR	0402	1	2.2K±5%
R518		SMT RESISTOR	0402	1	270R±5%
R519-R523		SMT RESISTOR	0402	4	10K±5%
R524-R527		SMT RESISTOR	0402	4	100R±5%
R528		SMT RESISTOR	0402	1	22R±5%
R529		SMT RESISTOR	0402	1	100R±5%
R530		SMT RESISTOR	0402	1	220R±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R530		SMT RESISTOR	0402	1	100R±5%
R532		SMT RESISTOR	0402	1	22R±5%
R533		SMT RESISTOR	0402	1	56K±5%
R534		SMT RESISTOR	0402	1	47K±5%
R535		SMT RESISTOR	0402	1	56K±5%
R536-R537		SMT RESISTOR	0402	2	150K±5%
R538		SMT RESISTOR	0402	1	100K±5%
R539		SMT RESISTOR	0402	1	22K±5%
R540-R543		SMT RESISTOR	0402	4	100K±5%
R544		SMT RESISTOR	0402	1	4.7K±5%
R545-R546		SMT RESISTOR	0402	2	1K±5%
R547		SMT RESISTOR	0402	1	1.2K±5%
R548		SMT RESISTOR	0402	1	47K±5%
R549		SMT RESISTOR	0402	1	4.7K±5%
R550-R551		SMT RESISTOR	0402	2	2.2K±5%
R552		SMT RESISTOR	0402	1	10R±5%
R553		SMT RESISTOR	0402	1	0R
R554		SMT RESISTOR	0402	1	22K±5%
R555		SMT RESISTOR	0402	1	82K±5%
R556		SMT RESISTOR	0402	1	33K±5%
R557		SMT RESISTOR	0402	1	15K±5%
R558		SMT RESISTOR	0402	1	82K±5%
R559		SMT RESISTOR	0402	1	100K±5%
R560		SMT RESISTOR	0402	1	120K±5%
R561-R562		SMT RESISTOR	0402	2	68K±5%
R563		SMT RESISTOR	0402	1	47K±5%
R564		SMT RESISTOR	0402	1	100K±5%
R565		SMT RESISTOR	0402	1	330K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R566-R567		SMT RESISTOR	0402	2	1.2K±5%
R568		SMT RESISTOR	0402	1	6.8K±5%
R569-R571		SMT RESISTOR	0402	3	3.3K±5%
R572		SMT RESISTOR	0603	1	47R±5%
R573		SMT RESISTOR	0402	1	47R±5%
R574		SMT RESISTOR	0805	1	120R±5%
R575-R579		SMT RESISTOR	0402	5	1M±5%
R580-R581		SMT RESISTOR	0805	2	10R±5%
R582		SMT RESISTOR	0402	1	22R±5%
R583		SMT RESISTOR	0402	1	27K±5%
R584		SMT RESISTOR	0402	1	82K±5%
R585		SMT RESISTOR	0402	1	10R±5%
R586		SMT RESISTOR	0402	1	820R±5%
R587		SMT RESISTOR	0402	1	560R±5%
R588		SMT RESISTOR	0402	1	390R±5%
R589-R591		SMT RESISTOR	1206	3	0.36R±5%
R592		SMT RESISTOR	0402	1	220K±5%
R593		SMT RESISTOR	0402	1	300K±5%
R594		SMT RESISTOR	0402	1	180K±5%
R595		SMT RESISTOR	0402	1	3.9K±5%
R596		SMT RESISTOR	0402	1	1.5K±5%
R597		SMT RESISTOR	0402	1	180R±5%
R598		SMT RESISTOR	0402	1	330R±5%
R599		SMT RESISTOR	0402	1	1.2K±5%
R600		SMT RESISTOR	0402	1	0R
R601		SMT RESISTOR	0402	1	100R±5%
R602-R603		SMT RESISTOR	0402	2	2.7K±5%
R604		SMT RESISTOR	0402	1	4.7K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R605		SMT RESISTOR	0402	1	6.8K±5%
R606		SMT RESISTOR	0402	1	8.2K±5%
R607-R610		SMT RESISTOR	0402	4	NO USE
R900		SMT RESISTOR	0402	1	1K±5%
R903		SMT RESISTOR	0402	1	NO USE
RP200-RP201		SMT RESISTOR ARRAY	4D03	2	10K×4
RP202-RP203		SMT RESISTOR ARRAY	4D03	2	5.1K×4
RP204		SMT RESISTOR ARRAY	4D03	1	1K×4
RP205		SMT RESISTOR ARRAY	4D03	1	47K×4
RP500		SMT RESISTOR ARRAY	4D03	1	1K×4
D200	ZXL1003	SMT LIGHTED DIODE	0603	1	RED
D201	ZXL1002	SMT LIGHTED DIODE	0603	1	GREEN
D202		SMT DIODE	SC-70	1	1SS372
D203	ZXL1004	LIGHTED DIODE	DIP-2	1	WHITE
D204		SMT RESISTOR	0402	1	0R
D206		SMT DIODE	SC-75	1	DA221
D207		SMT DIODE	SC-79	1	1SS400
D500-D505		SMT DIODE	SC-79	6	HSC277
D506		SMT DIODE	1206	1	HSK277
D507-D510		SMT VARIABLE CAPACITANCE DIODE	SC-79	4	HVC376
D511		SMT VARIABLE CAPACITANCE DIODE	0603	1	NO USE
D512		SMT NTC RESISTOR	0603	1	220K±5%
D513		SMT ZENER DIODE	0805	1	NO USE
D514		SMT DIODE	0603	1	1SS400
D515		SMT VARIABLE CAPACITANCE DIODE	0805	1	1SV214
D516-D517		SMT VARIABLE CAPACITANCE DIODE	0603	2	JDV2S14E
D518		SMT DIODE	0603	1	1SS400
D519		SMT DIODE	SC-79	1	HSC277

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
Q200		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144TE
Q201		SMT TRANSISTOR	SC-59	1	2SB1132
Q202		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144EE
Q203		SMT DIGITAL TRANSISTOR	EMT3	1	DTA144EE
Q204		SMT TRANSISTOR	SOT-23	1	2SC1623
Q205-Q206		SMT DIGITAL TRANSISTOR	EMT3	2	2SC4617
Q207		SMT DIGITAL TRANSISTOR	EMT3	1	DTC114EE
Q208		SMT DIGITAL TRANSISTOR	EMT3	1	2SC4617
Q209		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144TE
Q210		SMT DIGITAL TRANSISTOR	EMT3	1	DTA123JE
Q211		SMT DIGITAL TRANSISTOR	EMT3	1	NO USE
Q212		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144TE
Q213		SMT TRANSISTOR	SC-70	1	2SD2351
Q214		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144TE
Q500		SMT DIGITAL TRANSISTOR	EMT3	1	DTA144EE
Q501-Q503		SMT DIGITAL TRANSISTOR	EMT3	3	DTC114EE
Q504		SMT DIGITAL TRANSISTOR	EMT3	1	2SC4617
Q505	ZXE1003	SMT FET	PLD	1	2SK3476
Q506-Q507		SMT FET	SOT-143	2	3SK318
Q508		SMT DIGITAL TRANSISTOR	EMT3	1	DTA143ZE
Q509-Q510		SMT DIGITAL TRANSISTOR	EMT3	2	DTA114EE
Q511-Q512		SMT TRANSISTOR	SC-70	2	2SC4082
Q513	ZXE1004	SMT FET	SOT-89	1	2SK3078A
Q514		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144EE
Q515	ZXE1005	SMT TRANSISTOR	SOT-23	1	2SC3356
Q516-Q518		SMT TRANSISTOR	SC-70	3	2SC4226
Q519		SMT FET	EMT3	1	2SK1824
Q520		SMT TRANSISTOR	SC-70	1	2SC4226

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
Q521		SMT FET	EMT3	1	2SJ243
U200		SMT IC	SOT-23	1	S7127SF
U201	ZXA1005	SMT IC	LQFP-100	1	SRT3210
U202		SMT IC	SSOP-20	1	SX9170
U203		SMT IC	SOP8	1	AT24C64RM
U204		SMT IC	SSOP8	1	LM2904V
U205	ZXA1006	SMT IC	MSOP-8	1	SGM4890
U206	ZXA1008	SMT IC	SOT-25-5	1	TJ5205SF-33
U207		SMT IC	SOT-25	1	TA75S01F
U208		SMT IC	SOP-8	1	LY58-ML
U500-U501	ZXA1007	SMT IC	SOT-25-5	2	TJ5205SF-50
U502		SMT IC	SSOP14	1	NJM2904V
U503		SMT IC	SSOP16	1	TA31136FN
U504	ZXA1019	SMT IC	SSOP20	1	LMX2336ATM
U900		SMT IC	QFN-24	1	RDA5802
L201-L205		SMT FERRITE BEAD (BLACK)	0603	6	271T
L500-L503		SMT FERRITE BEAD (BLACK)	0603	4	271T
L504		SMT AIR-CORE COIL		1	5T
L505		SMT FERRITE BEAD (BLACK)	0603	1	271T
L506		SMT SMALL FIXED INDUCTOR (BLOVE)	2520	1	1uH
L507		SMT SMALL FIXED INDUCTOR	0603	1	2.7NH
L508		SMT AIR-CORE COIL		1	5T
L509		SMT AIR-CORE COIL		1	6T
L510		SMT AIR-CORE COIL		1	7T
L511		SMT AIR-CORE COIL		1	5T
L512		SMT AIR-CORE COIL		1	4T
L513-L514		SMT FERRITE BEAD (BLACK)	0805	2	30T
L515		SMT AIR-CORE COIL		1	7T

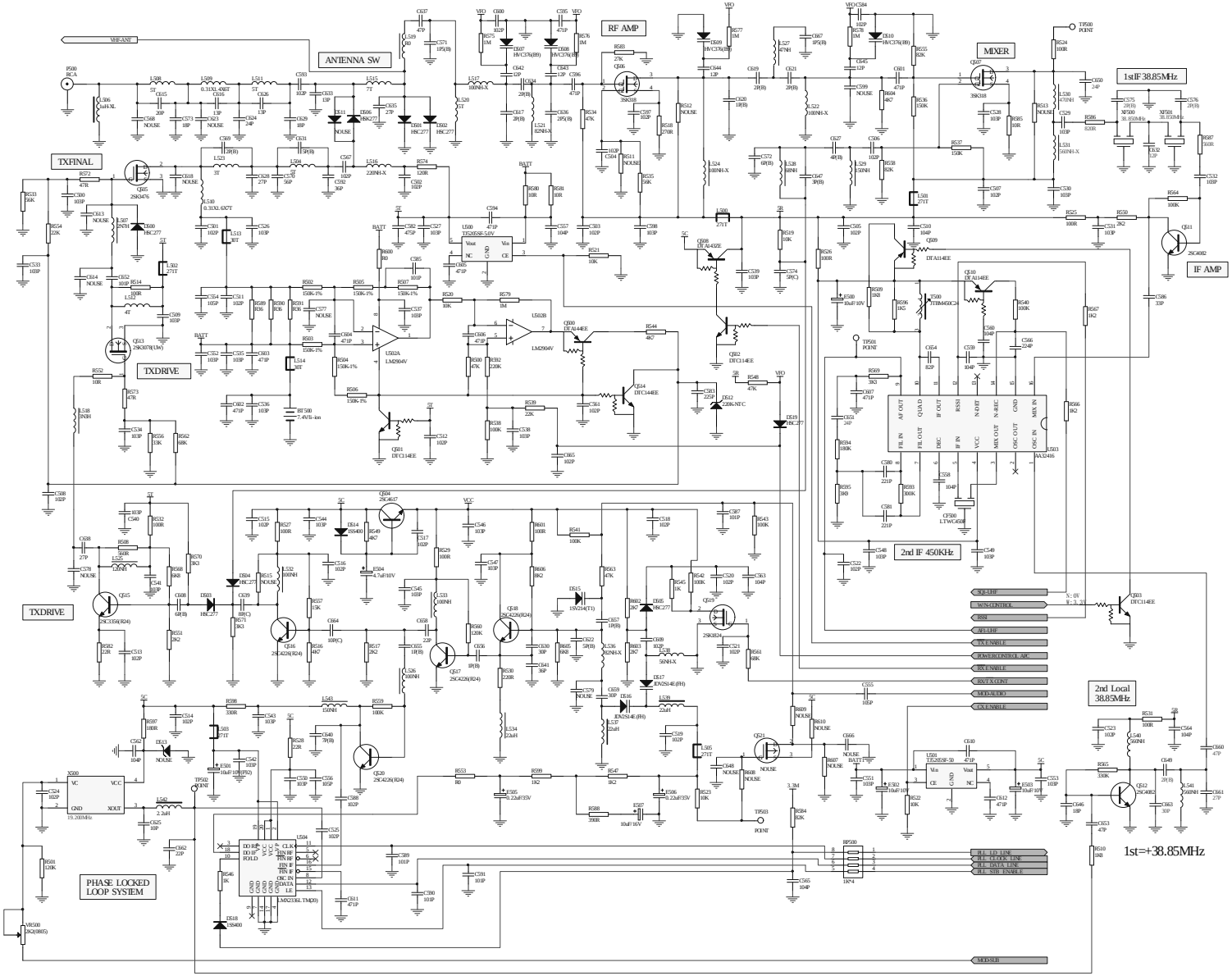
PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
L516		SMT WIRE WOUND INDUCTOR	0805	1	220nH
L517		SMT WIRE WOUND INDUCTOR	0805	1	100nH
L518		SMT SMALL FIXED INDUCTOR	0603	1	3.3nH
L519		SMT RESISTOR	0603	1	0R
L520		SMT AIR-CORE COIL		1	5T
L521-L522		SMT WIRE WOUND INDUCTOR	0805	2	82nH
L523		SMT AIR-CORE COIL		1	3T
L524		SMT WIRE WOUND INDUCTOR	0805	1	100nH
L525		SMT SMALL FIXED INDUCTOR	0603	1	120nH
L526		SMT SMALL FIXED INDUCTOR	0603	1	100nH
L527		SMT SMALL FIXED INDUCTOR	0603	1	47nH
L528		SMT SMALL FIXED INDUCTOR	0603	1	68nH
L529		SMT SMALL FIXED INDUCTOR	0603	1	150nH
L530		SMT SMALL FIXED INDUCTOR	0603	1	470nH
L531		SMT SMALL FIXED INDUCTOR (BLOVE)	2520	1	560nH
L532-L533		SMT SMALL FIXED INDUCTOR	0603	2	100nH
L534		SMT SMALL FIXED INDUCTOR	0603	1	22uH
L536		SMT WIRE WOUND INDUCTOR	0805	1	82nH
L537		SMT SMALL FIXED INDUCTOR	0603	1	22uH
L538		SMT WIRE WOUND INDUCTOR	0805	1	56nH
L539		SMT SMALL FIXED INDUCTOR	0603	1	22uH
L540-L541		SMT SMALL FIXED INDUCTOR	0603	2	560nH
L542		SMT SMALL FIXED INDUCTOR	0603	1	2.2uH
L543		SMT SMALL FIXED INDUCTOR	0603	1	150nH
L900		SMT SMALL FIXED INDUCTOR	0603	1	NO USE
L901		SMT SMALL FIXED INDUCTOR	0603	1	150nH
LS200	ZES1000	SPEAKER		1	16R/1W
CF500	ZXC1001	CERAMIC FILTER		1	LTWC450F

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
T500	ZXK1000	CERAMIC FILTER		1	450K(C24)
J200	ZUE1006	FLAT CABLE CONNECTOR	SSOI16F	1	0.5S-1X-16PWB
J201	ZUJ1001	SPEAKER SOCKET		1	SK-3.5mm+2.5mm
MK200	ZEY1002	MICROPHONE		1	6050P
W200	ZRV1001	VOLUME SWITCH		1	10K
S200	ZUU1004	FP2 BUTTON		1	FP1
S201	ZUU1005	FP1 BUTTON		1	FP2
S202	ZUU1003	TRANSMITTING BUTTON		1	PTT
S203		CHANNEL SWITCH		1	ED087410-FE18C6.0
S204	ZUU1001	SWITCH		1	TP-1150HSE
VR500		SMT RESISTOR		1	2.2K±5%
X500	ZXQ1003	SMT TCXO		1	19.200MHz
XF500-X501	ZXF1001	SMT CRYSTAL FILTER		2	38.850MHz
Y200		CERAMIC FILTER		1	3.58MHz
Y201		SMT CRYSTAL		1	32.768KHz
Y900		SMT CRYSTAL		1	32.768KHz
P500	ZUE1003	ANT CN		1	
	ZUA1001	FLEXIBLE CABLE		1	

SCHEMATIC DIAGRAM



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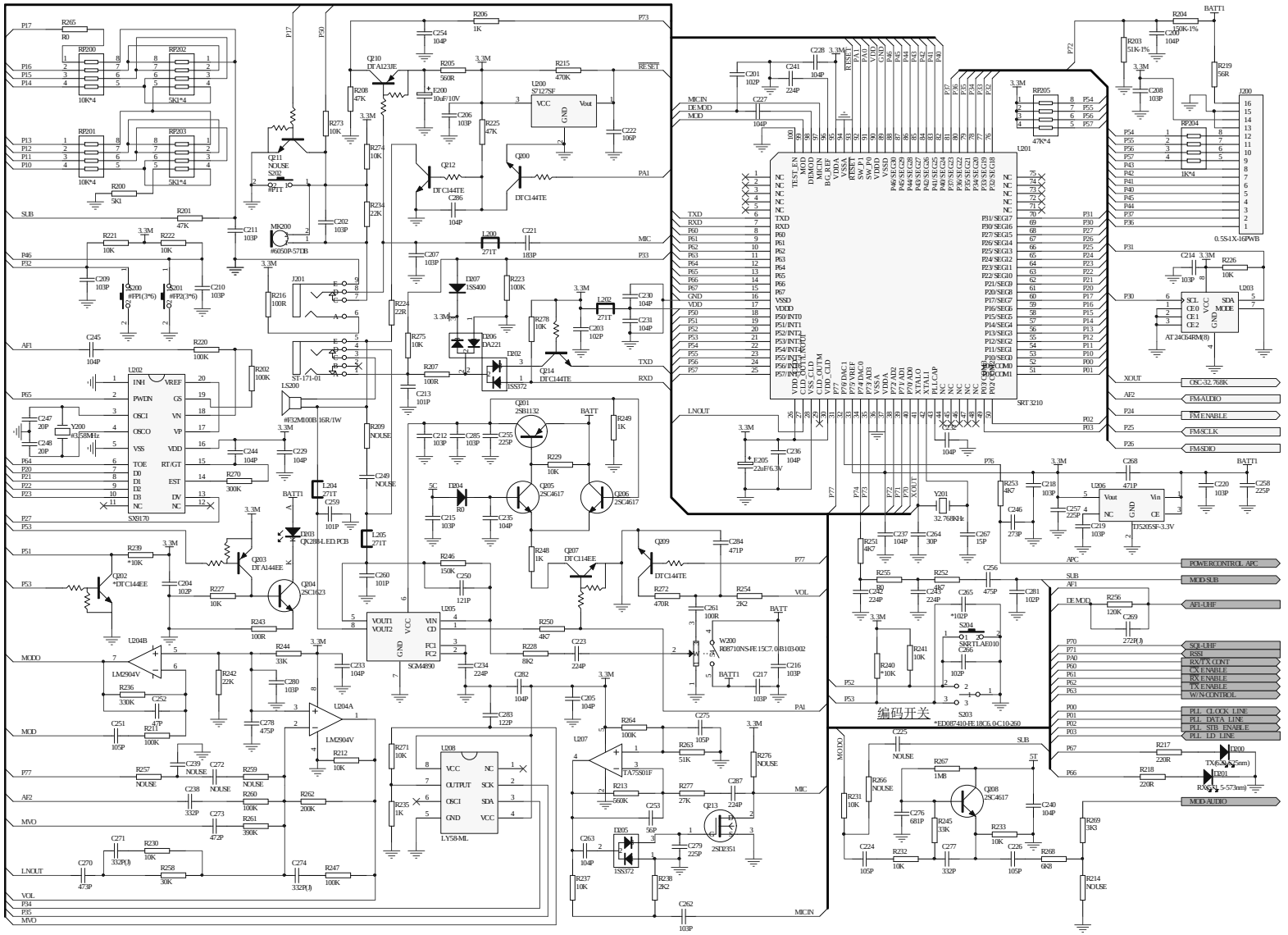

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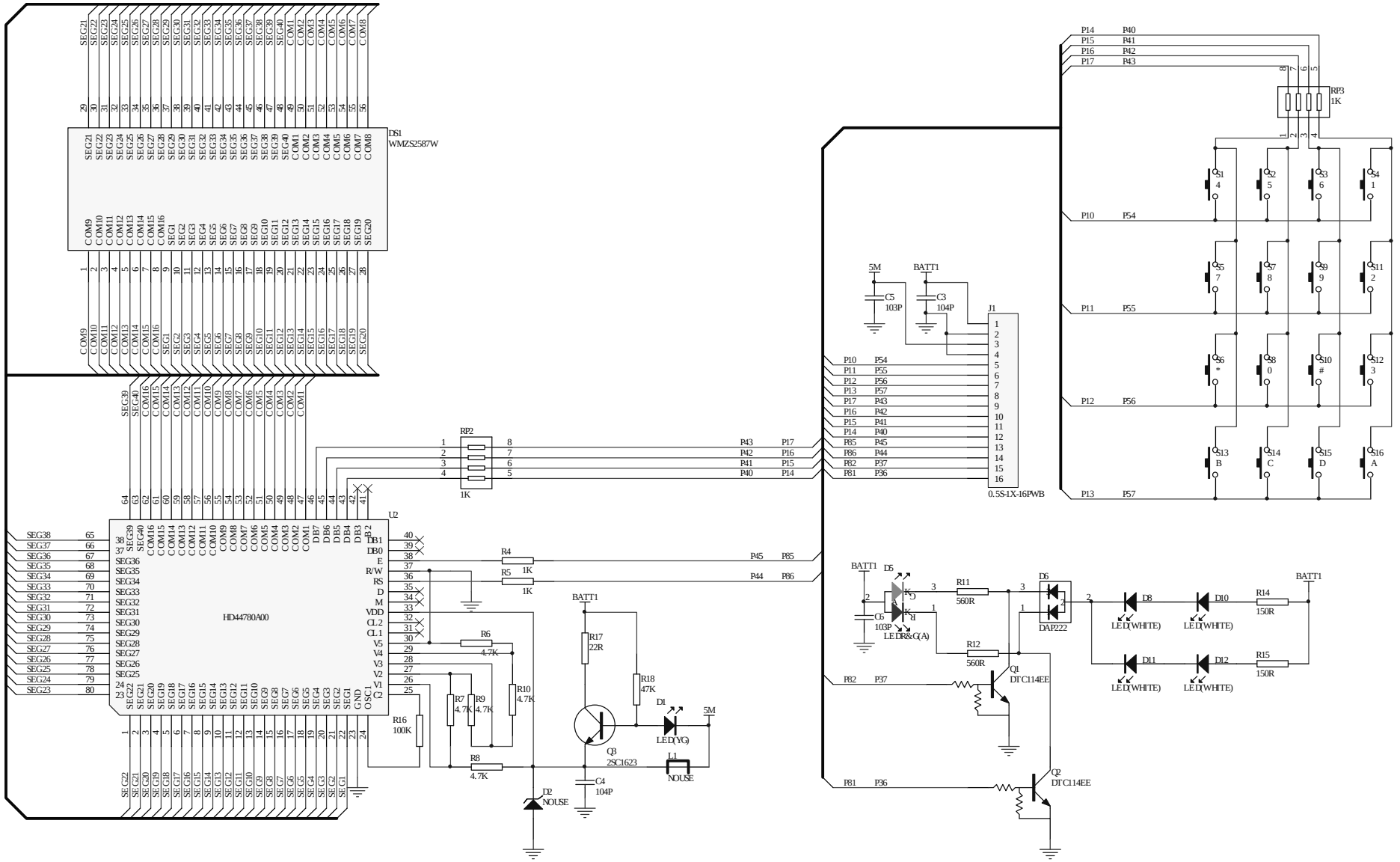

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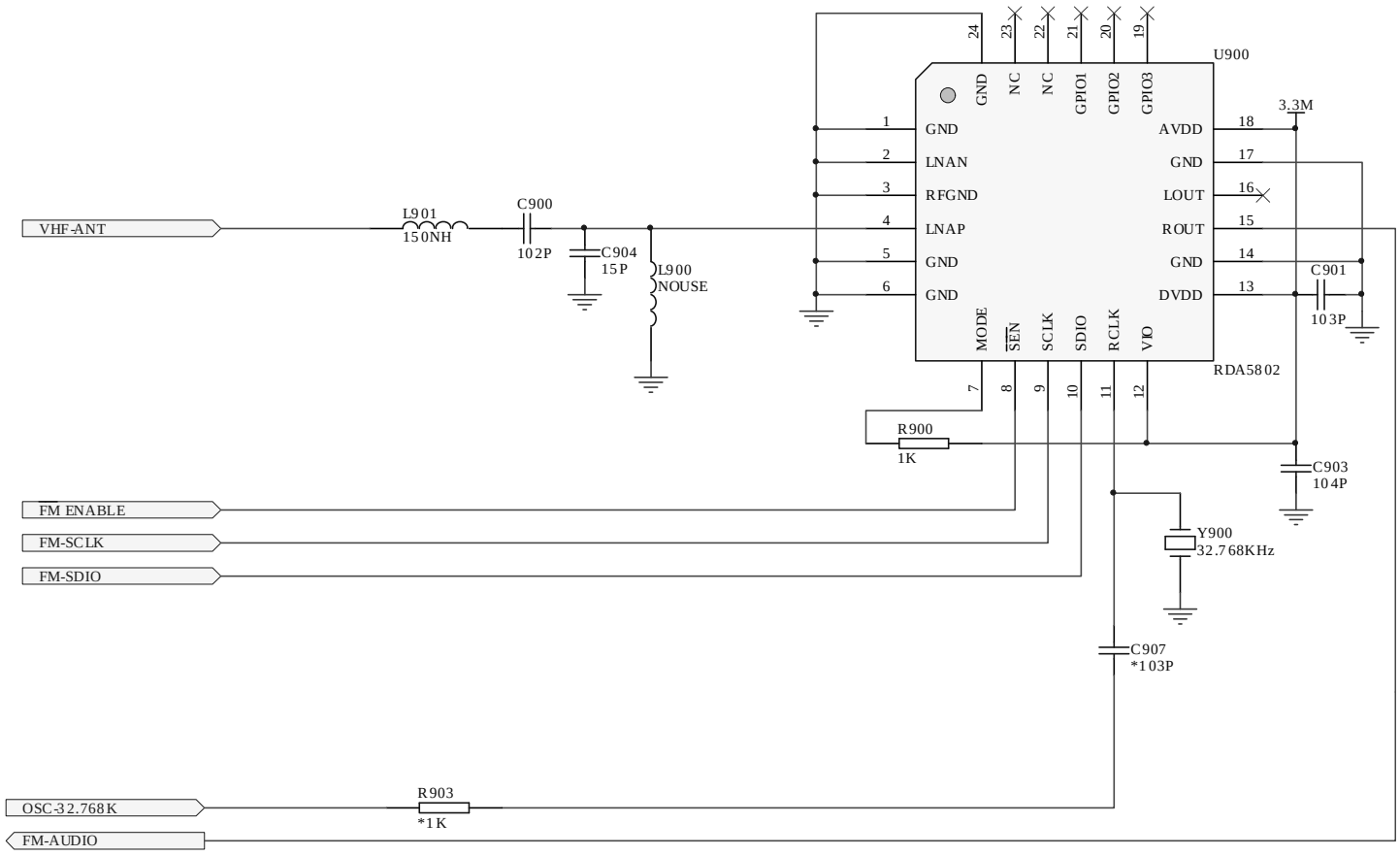
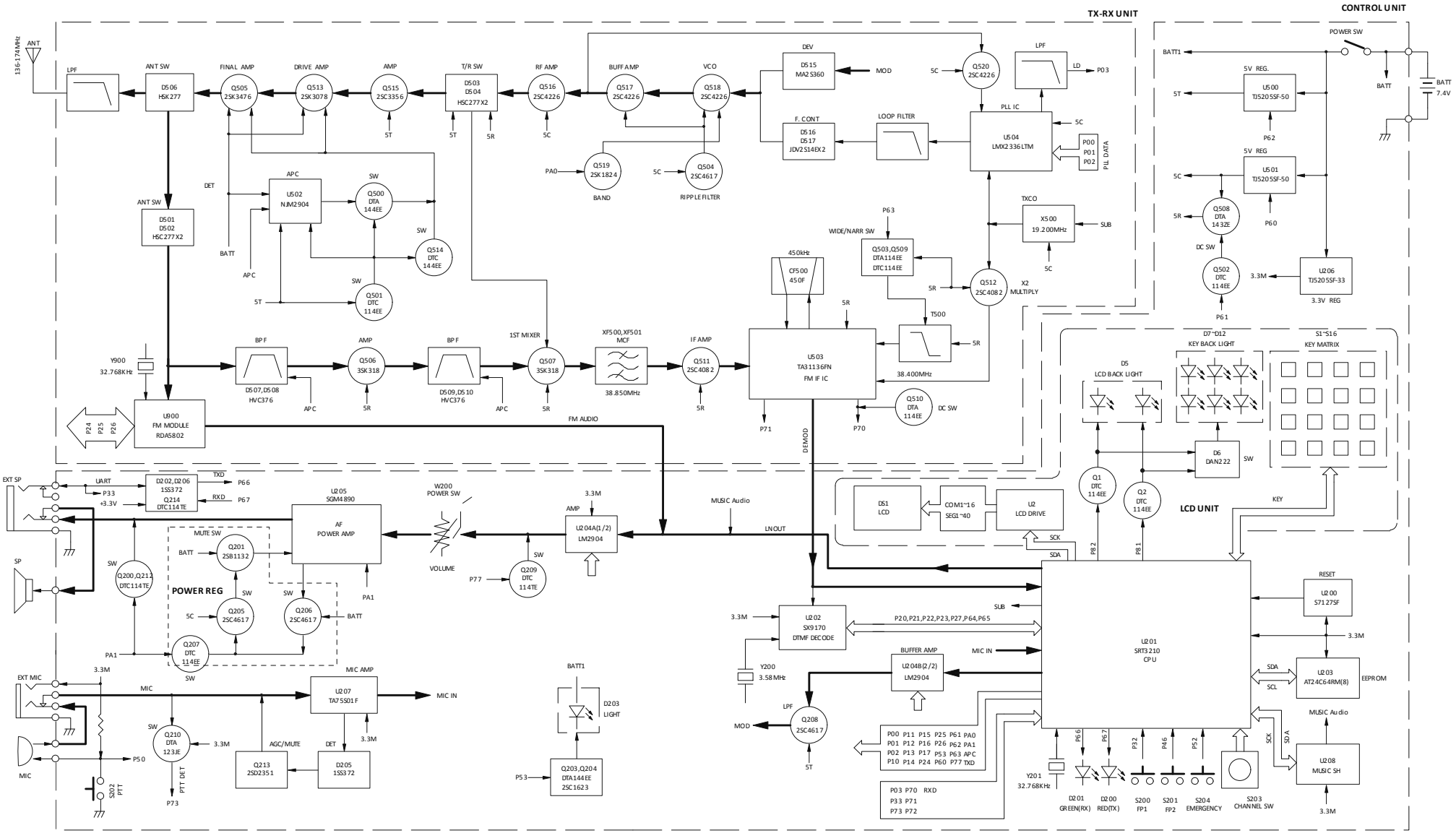
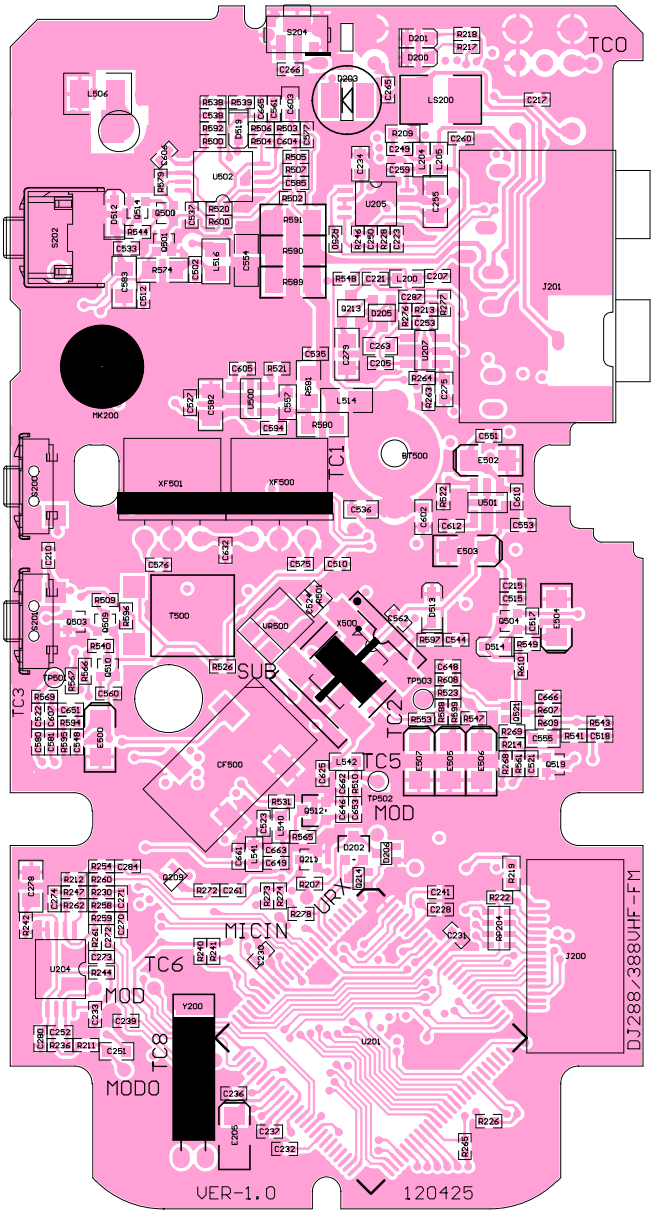


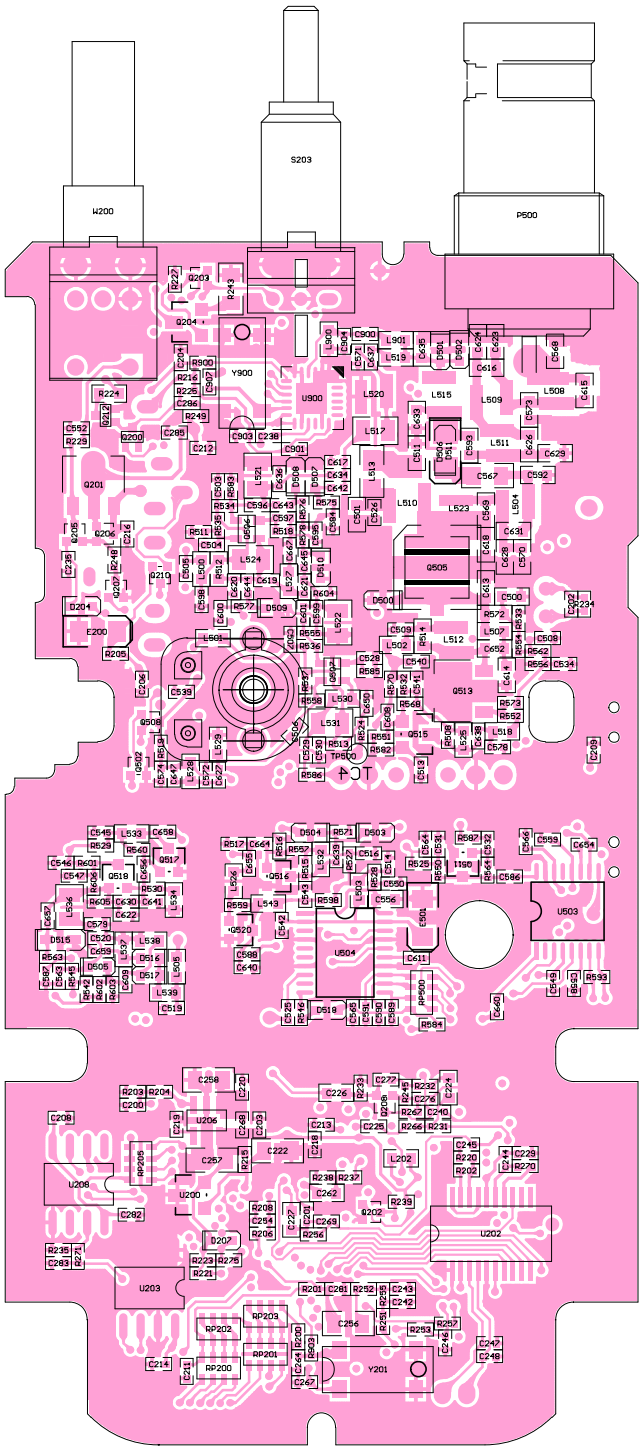
BLOCK DIAGRAM



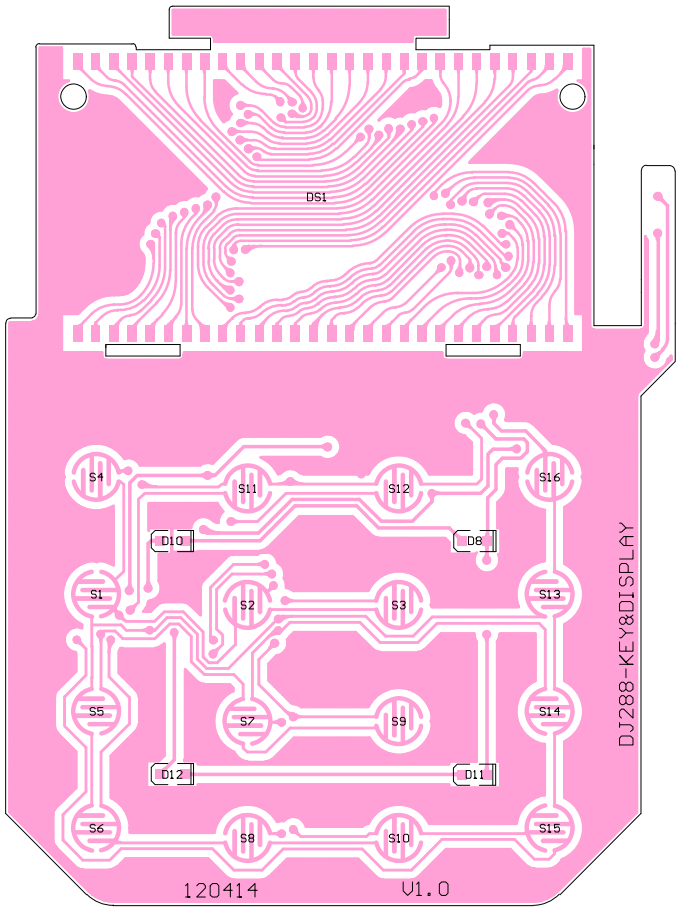
PC board views



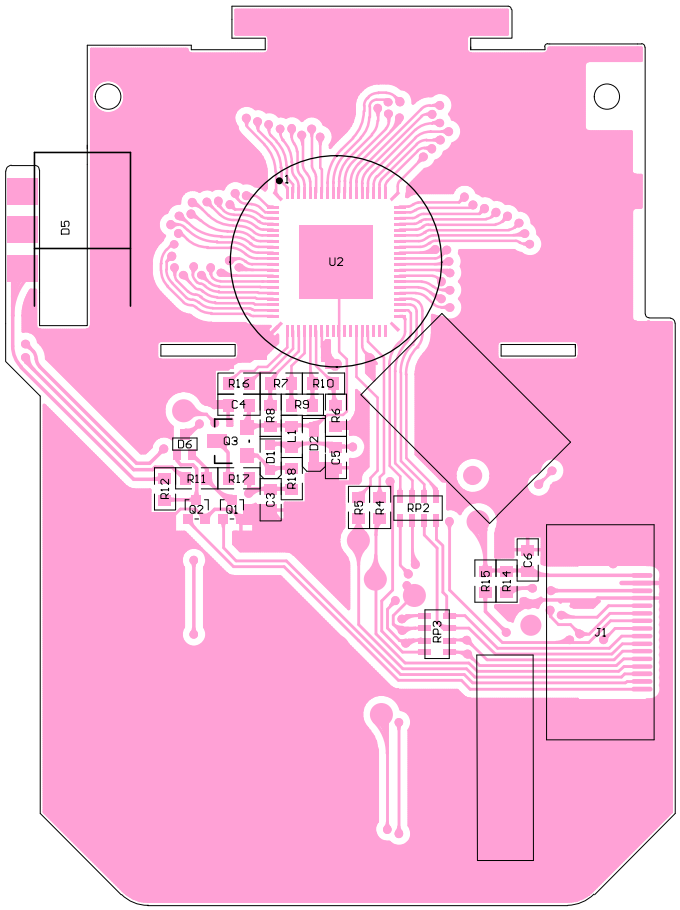
PC board views



PC board views



PC board views



DJ-A10/W10/A35/W35/A40/A245 series

Mechanical Parts

Val

Model	Antenna	Instruction Manual	LCD Panel	Main Unit	LCD Unit
DJ-A10	EA-211	PS0662	ZDP1002	ZADMA10	ZADLA10
DJ-W10	EA-211	PS0789	ZDP1003	ZADMW10	ZADLW10
DJ-A35	EA-218	PS0790	ZDP1004	ZADMA35	ZADLA35
DJ-W35	EA-218	PS0791	ZDP1005	ZADMW35	ZADLW35
DJ-A40	EA-212	PS0786	ZDP1006	ZADMA40	ZADLA40
DJ-A245	EA-213	PS0781	ZDP1007	ZADMA245	ZADLA245

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